CLAIMS

1. A toner comprising an additive and a toner matrix that comprises a binder resin, a colorant, and a wax,

wherein the additive contains an inorganic micropowder to whose surface polysiloxane and at least one selected from fatty acids and derivatives thereof are adhered.

2. The toner according to claim 1,

wherein the derivatives of the fatty acids are fatty acid esters, fatty acid amides, or fatty acid metal salts.

3. The toner according to claim 1,

wherein an average particle size of the inorganic micropowder is in a range of 30 nm to 200 nm.

4. The toner according to claim 1,

wherein the additive further contains a negatively-chargeable silica micropowder whose average particle size is in a range of 6 nm to 30 nm.

5. The toner according to claim 1,

wherein a mixing ratio between (A) at least one selected from the fatty acids and derivatives thereof and (B) the polysiloxane is A:B=2:1 to 1:20.

6. The toner according to claim 1,

wherein the polysiloxane is at least one selected from dimethylpolysiloxane, diphenyl polysiloxane, methylphenyl polysiloxane,

phenyl hydrogen polysiloxane, methyl hydrogen polysiloxane, and phenyl hydrogen methyl hydrogen polysiloxane.

7. The toner according to claim 1,

wherein with respect to the inorganic micropowder to whose surface polysiloxane and at least one selected from fatty acids and derivatives thereof have been adhered and dried, an ignition loss is 5 to 25 wt%, when the inorganic micropowder is ignited at 500°C for 2 hours.

8. The toner according to claim 1,

wherein the wax is an ester-based wax with an endothermic peak temperature (as found by DSC) of 50 to 120°C, an iodine value of 25 or less, a saponification value of 30 to 300, a number average molecular weight (as determined by gel permeation chromatography (GPC)) of 100 to 5000, a weight average molecular weight of 200 to 10,000, a ratio of the weight average molecular weight to the number average molecular weight (weight average molecular weight/number average molecular weight) of 1.01 to 8, and a ratio of Z average molecular weight to the number average molecular weight (Z average molecular weight/number average molecular weight) of 1.02 to 10, and having at least one molecular weight maximum peak in a molecular weight region from 5×10^2 to 1×10^4.

9. The toner according to claim 1,

wherein the wax is obtained by reacting a C_4 to C_{30} long chain alkyl alcohol, an unsaturated polycarboxylic acid or anhydride thereof, and a hydrocarbon wax, has a molecular weight distribution (as determined by GPC) such that a weight average molecular weight is from 1000 to 6000, a Z average molecular weight is from 1500 to 9000, a

ratio of the weight average molecular weight to number average molecular weight (weight average molecular weight/number average molecular weight) is from 1.1 to 3.8, a ratio of the Z average molecular weight to the number average molecular weight (Z average molecular weight/number average molecular weight) is from 1.5 to 6.5, and there is at least one molecular weight maximum peak in a region from 1×10^3 to 3×10^4, and the presence of an endothermic peak temperature (as found by DSC) of from 80°C to 120°C, and an acid value of from 5 to 80 mgKOH/g.

10. The toner according to claim 1,

wherein the wax is at least one wax selected from a wax based on an aliphatic amide having at least 16 to 24 carbon atoms, and a wax based on an alkylenebis fatty acid amide of a saturated or a mono- or diunsaturated fatty acid.

11. The toner according to claim 1,

wherein the wax is at least one wax selected from a group consisting of hydroxystearic acid derivatives, glycerol fatty acid esters, glycol fatty acid esters, and sorbitan fatty acid esters.

12. A two-component developer comprising,

a toner containing an additive and a toner matrix that contains at least a binder resin, a colorant, and a wax, and

a carrier,

wherein the additive contains an inorganic micropowder whose surface is treated with polysiloxane and at least one selected from fatty acids and derivatives thereof, and

wherein the carrier comprises a core material whose surface is

coated with a resin containing a fluorine-modified silicone resin containing an aminosilane coupling agent.

13. The two-component developer according to claim 12, wherein the derivatives of the fatty acids are fatty acid esters, fatty acid amides, or fatty acid metal salts.

14. The two-component developer according to claim 12, wherein an average particle size of the inorganic micropowder is in a range of 30 nm to 200 nm.

15. The two-component developer according to claim 12, wherein the additive further contains a negatively-chargeable silica micropowder whose average particle size is in a range of 6 nm to 30 nm.

16. The two-component developer according to claim 12, wherein a mixing ratio between (A) at least one selected from the fatty acids and derivatives thereof and (B) the polysiloxane is A:B=2:1 to 1:20.

17. The two-component developer according to claim 12, wherein the polysiloxane is at least one selected from dimethylpolysiloxane, diphenyl polysiloxane, methylphenyl polysiloxane, phenyl hydrogen polysiloxane, methyl hydrogen polysiloxane, and phenyl hydrogen methyl hydrogen polysiloxane.

18. The two-component developer according to claim 12, wherein with respect to the inorganic micropowder to whose

surface polysiloxane and at least one selected from fatty acids and derivatives thereof have been adhered and dried, an ignition loss is 5 to 25 wt%, when the inorganic micropowder is ignited at 500°C for 2 hours.

19. The two-component developer according to claim 12,

wherein the wax is an ester-based wax with an endothermic peak temperature (as found by DSC) of 50 to 120°C, an iodine value of 25 or less, a saponification value of 30 to 300, a number average molecular weight (as determined by gel permeation chromatography (GPC)) of 100 to 5000, a weight average molecular weight of 200 to 10,000, a ratio of the weight average molecular weight to the number average molecular weight (weight average molecular weight/number average molecular weight) of 1.01 to 8, and a ratio of Z average molecular weight to the number average molecular weight (Z average molecular weight/number average molecular weight) of 1.02 to 10, and the presence of at least one molecular weight maximum peak in a molecular weight region from 5×10^2 to 1×10^4.

20. The two-component developer according to claim 12,

wherein the wax is obtained by reacting a C_4 to C_{30} long chain alkyl alcohol, an unsaturated polycarboxylic acid or anhydride thereof, and a hydrocarbon wax, has a molecular weight distribution (as destemined by GPC) such that a weight average molecular weight is from 1000 to 6000, a Z average molecular weight is from 1500 to 9000, a ratio of the weight average molecular weight to number average molecular weight (weight average molecular weight/number average molecular weight) is from 1.1 to 3.8, a ratio of the Z average molecular weight to the number average molecular weight (Z average molecular weight/number average molecular weight) is from 1.5 to 6.5, and the

presence of at least one molecular weight maximum peak in a region from 1×10^3 to 3×10^4, and has an endothermic peak temperature (as found by DSC) of from 80°C to 120°C, and an acid value of from 5 to 80 mgKOH/g.

21. The two-component developer according to claim 12, wherein the wax is at least one wax selected from a wax based on an aliphatic amide having at least 16 to 24 carbon atoms, and a wax based on an alkylenebis fatty acid amide of a saturated or a mono- or diunsaturated fatty acid.

22. The two-component developer according to claim 12, wherein the wax is at least one wax selected from a group consisting of hydroxystearic acid derivatives, glycerol fatty acid esters, glycol fatty acid esters, and sorbitan fatty acid esters.

23. The two-component developer according to claim 12, wherein the coating resin of the carrier contains the aminosilane coupling agent in a proportion of 5 to 40 parts by weight per 100 parts by weight of the coating resin.

24. The two-component developer according to claim 12, wherein the coating resin of the carrier contains a conductive micropowder in a proportion of 1 to 15 parts by weight per 100 parts by weight of the coating resin.

25. An image forming method that makes use of a developing means in which an AC bias with a frequency of 5 to 10 kHz and a bias of 1.0 to 2.5 kV (p-p) is applied along with a DC bias

between a photosensitive member and a developing roller, and a peripheral speed ratio between the photosensitive member and the developing roller is from 1:1.2 to 1:2,

wherein the method uses a toner containing an additive and a toner matrix that contains at least a binder resin, a colorant, and a wax, and the additive contains an inorganic micropowder to whose surface polysiloxane and at least one selected from fatty acids and derivatives thereof are adhered.

26. An image forming method that makes use of a transfer system in which there are a plurality of toner image forming stations including at least an image support, charging means for forming an electrostatic latent image on the image support, and a toner support, wherein

the electrostatic latent image having been formed on the image support is visualized by a toner containing an additive and a toner matrix that contains at least a binder resin, a colorant, and a wax, the additive containing an inorganic micropowder to whose surface polysiloxane and at least one selected from fatty acids and derivatives thereof are adhered,

a primary transfer process in which the toner image having been obtained by visualizing the electrostatic latent image is transferred to an endless transfer member by bringing the transfer member into contact with the image support, is executed sequentially and continuously to form a multilayer transferred toner image on the transfer member, and then a secondary transfer process in which the multilayer toner image having been formed on the transfer member is transferred all at once to a transfer medium, is executed, and

the transfer processes satisfies $d1/v \leq 0.65$ (sec), when d1 (mm) is a distance from a first primary transfer position to a second primary

transfer position, or a distance from the second primary transfer position to a third primary transfer position, or a distance from the third primary transfer position to a fourth primary transfer position, and v (mm/s) is the peripheral speed of the photosensitive member.

27. An image forming method that makes use of a transfer system in which there are a plurality of toner image forming stations including at least an image support, charging means for forming an electrostatic latent image on the image support, and a toner support, wherein

the electrostatic latent image having been formed on the image support is visualized by a toner containing an additive and a toner matrix that contains at least a binder resin, a colorant, and a wax, the additive containing an inorganic micropowder to whose surface polysiloxane and at least one selected from fatty acids and derivatives thereof are adhered,

a transfer process in which the toner image having been obtained by visualizing the electrostatic latent image is transferred to a transfer medium sequentially and continuously, is executed, and

the transfer processes satisfies $d1/v \leq 0.65$ (sec), when d1 (mm) is a distance from a first primary transfer position to a second primary transfer position, or a distance from the second primary transfer position to a third primary transfer position, or a distance from the third primary transfer position to a fourth primary transfer position, and v (mm/s) is the peripheral speed of the photosensitive member.